

**ABSTRACT**

A system for determining whether arcing is present in an electrical circuit in response to a sensor signal corresponding to current in the circuit includes a circuit for  
5 analyzing the sensor signal to determine the presence of broadband noise in a predetermined range of frequencies, and producing a corresponding output signal. A controller processes the sensor signal and the output signal to determine current peaks and rise times and to determine, using the current peaks and rise times and the presence of  
10 broadband noise, whether an arcing fault is present in the circuit, by comparing data corresponding to the current peaks and rise times and broadband noise with preselected data indicative of an arcing fault. The circuit for analyzing and the controller are integrated onto a single application specific integrated circuit chip.